

Chemistry I: Percent Solution problems

ON SEPARATE SHEET OF PAPER, solve the following problems showing ALL work.

Use density to calculate the total weight of the solution (volume X density).

Sp. gr. is the same as density.

1. Calculate the weight of table salt needed to make 670 grams of a 4.00 % solution.
2. How many grams of solute are in 2200 grams of a 7.00% solution?
3. Alcohol has a density of 0.790 grams per ml. (a) Calculate the weight of alcohol needed to prepare 4000 grams of a 1.00% solution of iodine. (b) Calculate the volume that would be needed.
4. When 600 grams of a 3.0% solution of boric acid are crystallized, what weight of boric acid crystals is formed? Assume complete recovery.
5. Calculate the weight of sodium hydroxide in 1liter of a 50.0% solution. The density of the solution is 1.53 g per ml.
6. If the density of a solution of potassium hydroxide is 1.28 g per mL and it is a 29% solution, how many grams of KOH are in 1.0 liter of solution?
7. If 470.6 grams of sugar are dissolved in sufficient water to make 1.0 liter of solution having a sp. gr. of 1.1764, what is the percentage concentration or the solution?
8. Calculate the weight of hydrogen chloride, which is dissolved in 1.0 liter of a 37% HCl (concentrated) solution, having a density of 1.19 grams per mL.
9. If vinegar has a specific gravity of 1.0055 and is a 5.00% solution of acetic acid, calculate the weight of the solute in 1.00 liter.
10. A 65% glycerol solution has a density of 1.17 grams per mL. Calculate the weight of glycerol in 5.0 kiloliters of the solution.
11. A 70.0% sucrose solution has a density of 1.35 grams per ml. Calculate the weight of sucrose dissolved in 1.00 liter of this solution.
12. Find the weight of sodium chloride which is crystallized when 2000 ml of a 20% sodium chloride solution, sp. gr. =1.148, is evaporated to dryness.